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10/760,992	01/20/2004	Elliott J. Straus	OMNZ 2 00014	1988

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EXAMINER	
LUU, CUONG V	

ART UNIT	PAPER NUMBER
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,992	STRAUS, ELLIOTT J.	
	Examiner	Art Unit	
	Cuong V. Luu	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/17/2007 has been entered.

Claims 11-29 are pending. Claims 1-10 have been canceled. Claims 11-29 have been added. Claims 11-29 have been examined. Claims 11-29 have been rejected.

Response to Arguments

1. Applicant's arguments with respect to claims 1 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 22 are rejected under the second paragraph of 35 U.S.C. 112 for lack insufficient antecedent basis and indefinite.

1. Claims 12 and 22 recite the limitation "wherein instructions for carrying our said method". There is insufficient antecedent basis for this limitation in the claims because the "instructions" is not mentioned before.

2. As per claims 12 and 22, the phrase "computer readable medium format" renders it indefinite since it is not clear whether the Applicant means the medium or format of structured file(s) of instructions. For purpose of examining the claims, the Examiner interprets them as the computer readable medium.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 15-16 and 25-26 are rejected under 35 U.S.C. 112, first paragraph.

3. Claims 15 and 25 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "differential scanning calorimetry" (page 16 lines 31-34), does not reasonably provide enablement for "digital scanning calorimetry". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The Examiner assumes the Applicant means "differential scanning calorimetry". Claims 15 and 25 recite "digital scanning calorimetry" which is not described in the specification to enable the claim.

4. Claims 16 and 26 inherit the defects of claims 15 and 25, respectively.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 20 and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (In-Mold Functional Coating of Thermoplastic Substrate: Process Modeling, Antec 2001, 255. Since pages are not numbered, for the purpose of examining, the examiner numbers them from 1 for the first page to 5 for the last page and columns 1 and 2 for each page).

5. As per claim 20, Chen teaches a method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article, said method comprising the steps of:

predicting a coating composition fill pattern in said mold over at least a two dimensional surface (p. 2 col. 1 lines 1-3)); and

using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article and to reduce the presence of surface defect of a coating formed from said in-mold coating composition (p. 1 col .2 the last 2 lines and p. 2 col. 1 lines 1-3); and

placing said injection nozzle in said optimal placement position, wherein said step of predicting a coating fill pattern in said mold is performed by determining the following a) the relationship between a fluidity, S, of an in mold coating composition and a pressure gradient present in said mold (p. 2 col. 2 the last 2 lines and p. 3 col. 1 lines 1-2 and equation 11. fluidity S is a ratio between flow rate and gradient pressure; equation 11 establish a relationship between flow rate and gradient pressure, so it implicitly determines the relationship between a fluidity, S, of an in mold coating composition and a pressure gradient present in said mold), and b) the relationship between the coating thickness of the in mold coating composition and an injection pressure (p. 3 col. 1 lines 1-2 and equation 11. Equation 11 reads onto this limitation).

6. As per claim 27, Chen teaches said process minimizes the potential for surface defects in an in mold coating formed on a surface of said molded article (p. 1 col. 2 lines 1-5).

7. As per claim 28, Chen teaches said method is used for an in-mold coating process including at least filling, packing, and solidification phases (p. 2 col. 2 paragraph 2).

8. As per claim 29, Chen teaches said method is used in conjunction with a method to minimize a cure time of the in-mold coating composition (p. 2 col. 1 lines 1-3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-14 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (In-Mold Functional Coating of Thermoplastic Substrate: Process Modeling, Antec 2001, 255) in view of Ladeinde (A Procedure for Advection and Diffusion in Thin Cavities, Computational Mechanics 15 (1995) pp. 511-520, Springer-Verlag, 1995).

9. As per claim 11, As per claim 11, Chen teaches a method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article, said method comprising the steps of:

predicting a coating composition fill pattern in said mold (p. 2 col. 1 lines 1-3); and

using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating composition to flow over at least a part of a molded article and to reduce the presence of surface defects of a coating formed from said in-mold coating composition (p. 2 col. 1 lines 1-3. The step of predicting fill pattern above results in determining optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating composition, and p. 2 col. 1 lines 1-3 also teaches IMC reduce the presence of surface defects of a coating formed from said in-mold coating composition); and

placing said injection nozzle in said optimal placement position, wherein said step of predicting a coating composition fill pattern in said mold is performed by determining the relation between a pressure in said mold and a flow rate of said coating composition (p. 2 col. 2 the last 2 lines of the col. and p. 3 col. 1 lines 1-2 and equation 11) using numerical

method and d) repeating filling until the in mold coating composition filling process is complete (p. 2 col. 2 paragraph 2).

However, Chen does not teach using the numerical method being a finite difference method comprising the steps of:

a) defining a fixed spatial step to track a flow front location of the in mold coating composition,.

b) advancing the flow front location by one spatial step for a fixed time increment,

c) obtaining the pressure and coating composition thickness distributions for said in mold coating, and

d) repeating said steps until the in mold coating composition filling process is complete.

Ladeinde teaches using a finite difference method comprising the steps of (p. 515 paragraph 1. The method finite difference described in this paper by Ladeinde inherits steps a), b), and c) since it involves dividing a part into a number of finite elements and performing numerical analysis starting at a fixed location and traverse in a direction in term of distance and time:

a) defining a fixed spatial step to track a flow front location of the in mold coating composition,

b) advancing the flow front location by one spatial step for a fixed time increment,

c) obtaining the pressure and coating composition thickness distributions for said in mold coating.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Ladeinde. Ladeinde's teachings would have controlled non-linear instability (p. 515 paragraph 1).

10. As per claim 12, Ladeinde teaches instructions for carrying out said method are contained in a computer readable medium (p. 519 paragraph 1 of section 4 Computational speed).

11. As per claim 13, Ladeinde teaches said steps of predicting a fill pattern and determining optimal placement of said nozzle are performed by a computer (p. 519 paragraph 1 of section 4 Computational speed).

12. As per claim 14, it is a choice for one of ordinary skill in the art to input data necessary for performing said steps into said computer manually. This limitation is, therefore, rejected.

13. As per claim 17, Chen teaches said process minimizes the potential for surface defects in an in mold coating formed on a surface of said molded article (p. 1 col. 2 lines 1-5).

14. As per claim 18, Chen teaches said method is used for an in-mold coating process including at least filling, packing, and solidification phases (p. 2 col. 2 paragraph 2).

15. As per claim 19, Chen teaches said method is used in conjunction with a method to minimize a cure time of the in-mold coating composition (p. 2 col. 1 lines 1-3).

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Ladeinde as applied to claims 13 above, and further in view of Walsh (US Patent 6,099,162).

16. As per claim 15, Chen and Ladeinde do not teach data necessary for performing said steps is automatically provided to said computer by an instrument taking differential scanning calorimetry measurements.

However, Wash teaches this limitation (col. 1 lines 43-53 and col. 3 lines 27-36. The sensors can be considered differential scanning calorimeters to obtain measurements as recited in col. 1 lines 43-53).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Chen, Ladeinde, and Walsh. Wash's teachings would have accurately and continuously monitored the monitoring the curing process (col. 3 lines 24-27).

17. As per claim 16, Chen teaches said data is stored in a data collection means associated with said instrument (p. 2 col. 1 paragraphs 1-3 of section Material characterization. These paragraphs teach using data measured by DSC to perform calculation. This suggests this limitation) and Ladeinde teaches using computer with data input to perform analysis (p. 519 paragraph 1 of section 4 Computational speed).

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 20 and further in view of Ladeinde.

18. As per claim 21, Chen does not teach using a finite element method combined with a control volume approach can be used to numerically determine said relationships. However, Ladeinde teaches this limitation (p. 515 paragraph 1).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Ladeinde. Ladeinde's teachings would have controlled non-linear instability (p. 515 paragraph 1).

Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 20 and further in view of Zuyev (Optimizing Injection Gate Location and Cycle Time for the In-Mold Coating (IMC) Process, Antec 2001).

19. As per claim 22, Chen does not teach instruction for carrying out said method are contained in a computer readable medium.

However, Zuyev teaches this limitation (p. 195 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Zuyev. Zuyev's teachings would have made a good prediction of the fill pattern (p. 195 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

20. As per claim 23, the discussions in claim 22 imply this limitation. It is, therefore, rejected for the same reasons.

21. As per claim 24, it is a choice for one of ordinary skill in the art to input data necessary for performing said steps into said computer manually. This limitation is, therefore, rejected.

Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Zuyev as applied to claim 23 above, and further in view of Walsh (US Patent 6,099,162).

22. As per claim 25, Chen does not teach data necessary for performing said steps is automatically provided to said computer by an instrument taking differential scanning calorimetry measurements.

However, Wash teaches this limitation (col. 1 lines 43-53 and col. 3 lines 27-36. The sensors can be considered differential scanning calorimeters to obtain measurements as recited in col. 1 lines 43-53).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Walsh. Wash's teachings would have accurately and continuously monitored the monitoring the curing process (col. 3 lines 24-27).

23. As per claim 26, Chen teaches said data is stored in a data collection means associated with said instrument (p. 2 col. 1 paragraphs 1-3 of section Material characterization. These paragraphs teach using data measured by DSC to perform calculation. This suggests this limitation) and Zuyev suggests using computer with data input to perform analysis (p. 195 col. 2 of the page section Optimal Location of IMC Injection Point paragraph 1 of the section).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CVL

KAMINI SHAH
SUPERVISORY PATENT EXAMINER